WHAT IS CLAIMED IS:

1. A method comprising:

transmitting a sample suspected of containing a bioagent from a remote location to a central location; and

analyzing the sample in the central location to confirm the presence or absence of the bioagent, wherein the analyzing comprises:

a) contacting nucleic acid from the bioagent in the sample with a pair of oligonucleotide primers which hybridize to sequences of the nucleic acid, wherein the sequences are between about 80-100% identical among different species of bioagents, wherein the sequences flank a variable nucleic acid sequence of the bioagent, wherein the variable nucleic acid sequence exhibits no greater than about 5% identity among species, and is between about 30 and 1000 nucleotides in length;

b) amplifying the variable nucleic acid sequence to produce an amplification product;

c) determining the molecular mass or base composition of the amplification product;

d) comparing the molecular mass or base composition to one or more molecular masses or base compositions of amplification products obtained by performing steps a)-c) on a plurality of known bioagents; and

e) performing steps a)-d) using at least one different oligonucleotide primer pair and comparing the results to one or more molecular mass or base composition amplification products obtained by performing steps a)-c) on a plurality of known bioagents, wherein a match identifies the unknown bioagent in the sample.

2. A method of claim 1 further comprising transmitting information regarding the presence or absence of the bioagent to the remote location after analysis in the central location.

3. A method of claim 2 wherein the information regarding the presence or absence of the bioagent is the name of the bioagent, a containment protocol for the bioagent, a treatment protocol for the bioagent, or any combination thereof.

4. A method of claim 2 wherein the transmitting is carried out using a local area network (LAN) or a wide area network (WAN).

5. A method of claim 1 wherein the sample is obtained from a human by a medical personnel.

6. A method of claim 1 wherein the sample in an inanimate object suspected of being contaminated.

7. A method of claim 1 wherein the sample is transmitted in a biohazard container.

8. A method comprising:

a) detecting a bioagent in a first remote location by i) contacting nucleic acid from the bioagent with a pair of oligonucleotide primers which hybridize to sequences of the nucleic acid, wherein the sequences are between about 80-100% identical among different species of bioagents, wherein the sequences flank a variable nucleic acid sequence of the bioagent, wherein the variable nucleic acid sequence exhibits no greater than about 5% identity among species, and is between about 30 and 1000 nucleotides in length; ii) amplifying the variable nucleic acid sequence to produce an amplification product; iii) determining the molecular mass or base composition of the amplification product; iv) comparing the molecular mass or base composition to one or more molecular masses or base compositions of amplification products obtained by performing steps i)-iii) on a plurality of known bioagents; and performing steps i)-iv) using at least one different oligonucleotide primer pair and comparing the results to one or more molecular mass or base composition amplification products obtained by performing steps i)-iii) on a plurality of known bioagents, wherein a match indicates detection of a bioagent;

b) transmitting the detection status of the bioagent in the first remote location to a centralized location; and

c) transmitting the detection status of the bioagent in the first remote location from the centralized location to at least one additional remote location.

9. A method of claim 8 wherein the first remote location is a medical station.

10. A method of claim 8 wherein the transmitting is carried out using a local area network (LAN) or a wide area network (WAN).

11. A method for indicating a safe food product comprising:

a) sampling the food product for the presence or absence of a bioagent by i) contacting nucleic acid from the food product with a pair of oligonucleotide primers that can hybridize to sequences of nucleic acid from a bioagent if present in the food product, wherein the sequences are between about 80-100% identical among different species of bioagents, wherein the sequences flank a variable nucleic acid sequence of the bioagent, wherein the variable nucleic acid sequence exhibits no greater than about 5% identity among species, and is between about 30 and 1000 nucleotides in length; ii) amplifying the variable nucleic acid sequence to produce an amplification product; iii) determining the molecular mass or base composition of the amplification product; iv) comparing the molecular mass or base composition to one or more molecular masses or base compositions of amplification products obtained by performing steps i)-iii) on a plurality of known bioagents; and performing steps i)-iv) using at least one different oligonucleotide primer pair and comparing the results to one or more molecular mass or base composition amplification products obtained by performing steps i)-iii) on a plurality of known bioagents, wherein a match indicates detection of a bioagent in the food product; and

b) associating the food product with safe consumption thereof.

12. A method of claim 11 wherein the association of the food product with safe consumption is carried out when the sample of food product is free of a harmful pathogen.

13. A method of claim 12 wherein the food product is a meat product, a produce product, or a beverage.

14. A method of claim 12 wherein a label affixed to the packaging material for the food product indicating that the food product has been tested and is free of pathogens.

15. A method of claim 12 wherein the association of the food product with safe consumption is carried out by a label on the packaging of the food product.

16. A method of any of claims 1, 8, or 11 wherein the bioagent is a bacterium, parasite, fungi, mold, virus, cell, or spore.

17. A method of any of claims 1, 8, or 11 wherein the amplification product is ionized by electorospray ionization, matrix assisted laser desorption or fast atom bombardment prior to molecular mass or base composition determination.

18. A method of any of claims 1, 8, or 11 wherein the molecular mass or base composition is determined by mass spectrometry.

19. A method of determining the presence or absence of a bioagent in a water tower comprising:

a) contacting a sample of water from the tower suspected of containing nucleic acid from a bioagent with either:

i) a pair of oligonucleotide primers which hybridize to sequences of the nucleic acid, wherein the sequences are between about 80-100% identical among different species of bioagents, wherein the sequences flank a variable nucleic acid sequence of the bioagent, wherein the variable nucleic acid sequence exhibits no greater than about 5% identity among species, and is between about 30 and 1000 nucleotides in length; or

ii) one oligonucleotide primer that hybridizes to a sequence of the nucleic acid, wherein the sequence is between about 80-100% identical among different species of bioagents, wherein a variable nucleic acid sequence of the bioagent is flanked by the primer and a natural stop region of the nucleic acid, wherein the variable nucleic acid sequence exhibits no greater than about 5% identity among species, and is between about 30 and 1000 nucleotides in length;

b) amplifying the variable nucleic acid sequence to produce an amplification product;

c) determining the molecular mass or base composition of the amplification product;

d) comparing the molecular mass or base composition to one or more molecular masses or base compositions of amplification products obtained by performing steps a)-c) on a plurality of known bioagents; and

e) performing steps a)-d) using at least one different oligonucleotide primer pair and comparing the results to one or more molecular mass or base composition amplification products obtained by performing steps a)-c) on a plurality of known bioagents, wherein a

match indicates the presence of a known bioagent and no match indicates the absence of a bioagent.

20. A method of identifying an unknown bioagent in a water tower comprising:

a) contacting a sample of water from the tower suspected of containing nucleic acid from a bioagent with either:

i) a pair of oligonucleotide primers which hybridize to sequences of the nucleic acid, wherein the sequences are between about 80-100% identical among different species of bioagents, wherein the sequences flank a variable nucleic acid sequence of the bioagent, wherein the variable nucleic acid sequence exhibits no greater than about 5% identity among species, and is between about 30 and 1000 nucleotides in length; or

ii) one oligonucleotide primer that hybridizes to a sequence of the nucleic acid, wherein the sequence is between about 80-100% identical among different species of bioagents, wherein a variable nucleic acid sequence of the bioagent is flanked by the primer and a natural stop region of the nucleic acid, wherein the variable nucleic acid sequence exhibits no greater than about 5% identity among species, and is between about 30 and 1000 nucleotides in length;

b) amplifying the variable nucleic acid sequence to produce an amplification product;

c) determining the molecular mass or base composition of the amplification product;

d) comparing the molecular mass or base composition to one or more molecular masses or base compositions of amplification products obtained by performing steps a)-c) on a plurality of known bioagents; and

e) performing steps a)-d) using at least one different oligonucleotide primer pair and comparing the results to one or more molecular mass or base composition amplification products obtained by performing steps a)-c) on a plurality of known bioagents, wherein a match identifies the unknown bioagent.

21. A method of providing information regarding the safety of water in a water tower comprising:

a) receiving a sample of water from the water tower;

b) detecting the presence or absence of a harmful bioagent in the sample by: i) contacting nucleic acid from the sample with a pair of oligonucleotide primers that can hybridize to sequences of nucleic acid from a bioagent if present in the sample, wherein the sequences are between about 80-100% identical among different species of bioagents, wherein the sequences flank a variable nucleic acid sequence of the bioagent, wherein the variable nucleic acid sequence exhibits no greater than about 5% identity among species, and is between about 30 and 1000 nucleotides in length; ii) amplifying the variable nucleic acid sequence to produce an amplification product; iii) determining the molecular mass or base composition of the amplification product; iv) comparing the molecular mass or base composition to one or more molecular masses or base compositions of amplification products obtained by performing steps i)-iii) on a plurality of known bioagents; and performing steps i)-iv) using at least one different oligonucleotide primer pair and comparing the results to one or more molecular mass or base composition amplification products obtained by performing steps i)-iii) on a plurality of known harmful bioagents, wherein a match indicates detection of a harmful bioagent in the sample and no match indicates the absence of a harmful bioagent in the sample; and

c) transmitting information regarding the safety of the water, whereby the presence of a harmful bioagent indicates that the water is unsafe and the absence of a harmful bioagent indicates that the water is safe.

22. A method of any one of claims 19, 20, or 21 wherein the amplifying step comprises polymerase chain reaction.

23. A method of any one of claims 19, 20, or 21 wherein the amplifying step comprises ligase chain reaction or strand displacement amplification.

24. A method of any one of claims 19, 20, or 21 wherein the bioagent is a plant cell, animal cell, bacterium, virus, mold, parasite, fungus, or spore.

25. A method of any one of claims 19, 20, or 21 wherein the nucleic acid encodes ribosomal RNA.

26. A method of any one of claims 19, 20, or 21 wherein the nucleic acid encodes RNase P or an RNA-dependent RNA polymerase.

27. A method of any one of claims 19, 20, or 21 wherein the amplification product is ionized prior to molecular mass determination.

28. A method of any one of claims 19, 20, or 21 wherein the amplification product is ionized by electrospray ionization, matrix-assisted laser desorption or fast atom bombardment.

29. A method of any one of claims 19, 20, or 21 further comprising the step of isolating nucleic acid from the bioagent prior to contacting the nucleic acid with the at least one pair of oligonucleotide primers or at least one oligonucleotide primer.

30. A method of any one of claims 19, 20, or 21 wherein the one or more molecular masses or base compositions are contained in a database of molecular masses or base compositions.

31. A method of any one of claims 19, 20, or 21 wherein the molecular mass or base composition is determined by mass spectrometry.

32. The method of claim 31 wherein the mass spectrometry is Fourier transform ion cyclotron resonance mass spectrometry (FT-ICR-MS), ion trap, quadrupole, magnetic sector, time of flight (TOF), Q-TOF, or triple quadrupole.

33. A method of any one of claims 19, 20, or 21 further comprising performing the amplifying step in the presence of an analog of adenine, thymidine, guanosine or cytidine having a different molecular weight than adenosine, thymidine, guanosine or cytidine.

34. A method of any one of claims 19, 20, or 21 wherein at least one oligonucleotide primer comprises a base analog at positions 1 and 2 of each triplet within the primer, wherein the base analog binds with increased affinity to its complement compared to the native base.

35. A method of claim 34 wherein the oligonucleotide primer comprises a universal base at position 3 of each triplet within the primer.

36. The method of claim 34 wherein the base analog is 2,6-diaminopurine, propyne U, propyne T, propyne C, propyne G, phenoxazine, or G-clamp.

37. The method of claim 35 wherein the universal base is inosine, guanidine, uridine, 5-nitroindole, 3-nitropyrrole, dP, dK, or 1-(2-deoxy-β-D-ribofuranosyl)-imidazole-4-carboxamide.

38. A method of identifying a bioagent present in a water tower using a database of molecular masses or base composition signatures of known bioagents comprising:

a) contacting a sample of water from the tower suspected of containing nucleic acid from a bioagent with either:

i) a pair of oligonucleotide primers which hybridize to sequences of the nucleic acid, wherein the sequences are between about 80-100% identical among different species of bioagents, wherein the sequences flank a variable nucleic acid sequence of the bioagent, wherein the variable nucleic acid sequence exhibits no greater than about 5% identity among species, and is between about 30 and 1000 nucleotides in length; or

ii) one oligonucleotide primer that hybridizes to a sequence of the nucleic acid, wherein the sequence is between about 80-100% identical among different species of bioagents, wherein a variable nucleic acid sequence of the bioagent is flanked by the primer and a natural stop region of the nucleic acid, wherein the variable nucleic acid sequence exhibits no greater than about 5% identity among species, and is between about 30 and 1000 nucleotides in length;

b) amplifying the variable nucleic acid sequence to produce an amplification product;

c) determining the molecular mass or base composition of the amplification product;

d) comparing the molecular mass or base composition to one or more molecular masses or base compositions of amplification products in the database obtained by performing steps a)-c) on a plurality of known bioagents; and

e) performing steps a)-d) using at least one different oligonucleotide primer pair and comparing the results to one or more molecular mass or base composition amplification products obtained by performing steps a)-c) on a plurality of known bioagents, wherein a match identifies the unknown bioagent.

39. A method of claim 38 further comprising the step of isolating a nucleic acid from the bioagent prior to contacting the nucleic acid with the pair of oligonucleotide primers or the at least one oligonucleotide primer, wherein the comparing step further comprises comparing a base-pair count resulting from a translation of the corresponding molecular mass or base composition, and wherein a master database of molecular masses or base compositions of known bioagents further includes a translation of the molecular masses or base composition of known bioagents to corresponding base-pair counts of each known bioagent resulting from a specific primer pair set or primer and comparing the base-pair count of the bioagent against the obtained base-pair count of known bioagents for the selected primer pair set or primer for determining the identity of the bioagent.

40. A method of claim 39 further comprising reconciling the database of molecular masses or base compositions of known bioagents with the master database of molecular masses or base compositions of known bioagents.

41. A method of claim 40 wherein the master database of molecular masses or base compositions of known bioagents and the database of molecular masses or base compositions of known bioagents are reconciled over a network.

42. A method of claim 39 wherein the identity is determined by statistically correlating the molecular mass or base composition of the bioagent with at least one molecular mass or base composition of the master database.

43. A method of claim 21 wherein the transmission of information is carried out by a network.

44. A method of claim 43 wherein the network is a local area network.

45. A method of claim 43 wherein the network is a wide area network.

46. A method of claim 43 wherein the network is the internet.

47. A method of providing information regarding the bioagent status of a sample comprising:

a) receiving the sample;

b) detecting the presence or absence of a bioagent in the sample by: i) contacting nucleic acid from the sample with a pair of oligonucleotide primers that can hybridize to sequences of nucleic acid from a bioagent if present in the sample, wherein the sequences are between about 80-100% identical among different species of bioagents, wherein the sequences flank a variable nucleic acid sequence of the bioagent, wherein the variable nucleic acid sequence exhibits no greater than about 5% identity among species, and is between about 30 and 1000 nucleotides in length; ii) amplifying the variable nucleic acid sequence to produce an amplification product; iii) determining the molecular mass or base composition of the amplification product; iv) comparing the molecular mass or base composition to one or more molecular masses or base compositions of amplification products obtained by performing steps i)-iii) on a plurality of known bioagents; and performing steps i)-iv) using at least one different oligonucleotide primer pair and comparing the results to one or more molecular mass or base composition amplification products obtained by performing steps i)-iii) on a plurality of known harmful bioagents, wherein a match indicates detection of a harmful bioagent in the sample and no match indicates the absence of a harmful bioagent in the sample; and

c) transmitting information regarding the bioagent status of the sample.

48. A method of claim 47 further comprising providing a kit for obtaining the sample.